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BULLETIN

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Stoneguard 2000 Erosion Resistant Film

Background. Fasson UK Limited is marketing a pressure sensitive adhesive-coated, polyurethane-based film designed to protect surfaces from abrasion, erosion, and corrosion. It provides resistance to rain droplets, and to small and large particles at both high and low velocities. The material is approved by the UK Ministry of Defence and RAE Farnborough for use on aircraft. Current uses include the protection of helicopter rotor blades, propeller blades, and the leading edges of aircraft sections. Dowty-Rotol recommend the use of the product on propeller blades manufactured by them; it is currently used in Europe and the US. The material has also been evaluated as a protection for aerial panels (antennae) and does not cause signal attenuation.

Construction.

- Front . . . Flexible semitransparent PU-based calandered film.
Adhesive . . . High-performance acrylic adhesive for permanent bonding.
Backing . . . White Mando (clay-coated Kraft paper)

Features.

- PU-based face film
Flexible front film
Dimensionally stable film
Can be overpainted
High-performance acrylic adhesive
Specially designed backing paper

Benefits.

- Excellent erosion resistance
Easy application around curved surfaces
Low shrinkage
High temperature resistance
No negative "finish" implications
Meets all aerospace requirements (temperature, moisture, solvents, etc.)
Easy conversion (layflatness, die-cutting, release)

Typical Applications.

- Abrasion protection
Corrosion protection of car panels
Interleaf between two types of metal to prevent galvanic corrosion
Approved for use on helicopter rotor blades, aircraft propeller blades

Surface Preparation.

It is essential that the surface on which the film is applied be clean, dry, and free of grease and oil.

For longevity in service, the film should be over-painted; it can, however, be used without over-paint, in which case service life will be reduced due to UV attack.

Physical Properties

Test	Typical Values	Units	Test Method
Thickness			
Front	190 ± 0	Microns	NEN 1110
Adhesive	35 ± 5	"	FTM 7
Total	225 ± 15	"	"
Elongation	300	%	ISO/R 1184
Tensile strength	min. 1000	N/cm ²	ISO/R 1184
Tear Strength	12	N	ASTM D1004
Peel adhesion			
Initial 20 min. BT	320	N/m	Finat 1
24 hrs 23°C/50% RH	520	"	"
250 hrs 40°C/98% RH	600	"	"
7 days 70°C	600	"	"
250 hrs H ₂ O	520	"	"
Shear adhesion			
24 hrs 23°C	17.5	N/cm ²	"
Abrasion resistance		Excellent	SAJ-400 ASTM D 968
Shrinkage on paint primer		less than 0.5%	
Temperature resistance		(30 minutes 150°C): (-40°C to +150°C)	
Accelerated weathering		Limited life when not over-painted (UV resistance)	

Stoneguard 2000 can be covered with most types of oven-dried automotive paints and two-pack finishes used in the aircraft industry. The anchorage of a particular paint system to the surface of the material should be assessed in the light of individual requirements.

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